



## MEMORANDUM

To: Belem Parra, Vantage Data Centers Management Company, LLC  
c/o Michael Stoner, Lake Street Ventures

From: Mike Mowery, P.E.  
Kimley-Horn and Associates, Inc.

Date: September 29, 2016

Subject: Santa Clara Vantage Data Center Traffic Evaluation

Kimley-Horn and Associates, Inc. (Kimley-Horn) was retained by Vantage Data Centers Management Company, LLC to evaluate potential traffic impacts for the proposed Vantage Data Center in Santa Clara, California. This memorandum documents the methodology, assumptions, and results of the traffic evaluation.

## BACKGROUND

The proposed data center will be located on Mathew Street, east of Lafayette Street within the MH (Heavy Industrial) zone in Santa Clara. The proposed data center will consist of two main buildings, totaling 413,000 square feet, and a substation. The data center will be developed in four (4) separate phases. Phases 1 and 2 will be developed on 725 Mathew Street and Phases 3 and 4 on 651 Mathew Street. The substation will be constructed during Phase 1. The proposed project will have a total of 29 employees, with at most 16 employees working on site during the day. **Attachment A** shows the full build out site plan dated September 15, 2016.

## INTERSECTION LEVEL OF SERVICE

Intersection level of service (LOS) analysis for the AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak hour traffic was conducted for follow five (5) intersections:

1. Lafayette Street / Central Expressway
2. Lafayette Street / Walsh Avenue
3. Lafayette Street / Martin Avenue
4. Lafayette Street / Memorex Drive – Mathew Street
5. Lafayette Street / El Camino Real

Traffic conditions were evaluated for the following traffic conditions:

- Existing Conditions – Based on traffic counts from City Place Santa Clara Project Draft Environmental Impact Report (DEIR). Existing roadway geometry and traffic controls were used for this scenario.

- Existing Plus Project Conditions – Based on existing traffic volumes added to traffic generated by the proposed project. Existing roadway geometry and traffic controls were assumed for this scenario.

Intersection LOS analysis was evaluated following the Highway Capacity Manual (HCM) 2000 methodology within the *Traffic* software, which follows standards and methodologies set forth by the City of Santa Clara and Santa Clara County Congestion Management Program (CMP) administered by Santa Clara Valley Transportation Authority (VTA).

The LOS standard for a signalized intersection in the City of Santa Clara is LOS D or better during the AM or PM peak periods. Acceptable LOS for signalized intersections that are included in the Santa Clara County CMP is LOS E or better. Intersections that are included in the Santa Clara County CMP are Intersection #1 – Lafayette Street / Central Expressway and Intersection #5 – Lafayette Street / El Camino Real.

Significant impacts at signalized intersections would occur when the addition of the project traffic would result in the following conditions:

- If the intersection operates at an acceptable LOS without the project and degrades to an unacceptable LOS (i.e. LOS E or F for City intersections and LOS F for CMP intersections).
- If the intersection operates at an unacceptable LOS (LOS E or F for City intersections; LOS F for CMP intersections) without the project and the project increases the average control delay for the critical movements by four (4) or more seconds and increases the critical volume to capacity (v/c) by 0.01 or more.
  - If the addition of the project traffic reduces the amount of average control delay for a critical movement (i.e. negative change in delay) and the project increases the v/c by 0.01 or more.

## EXISTING CONDITIONS

Weekday intersection turning movement volumes were taken from the City Place Santa Clara Project Draft Environmental Impact Report, which were collected in August 2014 and January 2015. Existing peak hour turning movements volumes are shown in **Attachment B**.

Results of the LOS analysis under the Existing Conditions are presented in **Table 1**. All study intersections function within acceptable LOS standards under this scenario. Analysis sheets are provided in **Attachment C**.

Table 1: Existing Intersection Level of Service Summary

#	Intersection	LOS Criteria	Existing							
			AM Peak				PM Peak			
			LOS	Delay (sec)	v/c Ratio	Crit. Delay	LOS	Delay (sec)	v/c Ratio	Crit. Delay
1	Lafayette Street / Central Expressway <sup>1</sup>	E	E+	59.0	0.483	67.9	E	62.3	0.790	62.2
2	Lafayette Street / Walsh Avenue	D	B	12.4	0.495	9.2	B-	18.6	0.642	19.2
3	Lafayette Street / Martin Avenue	D	B-	19.7	0.559	18.9	B-	19.4	0.559	16.7
4	Lafayette Street / Memorex Drive - Mathew Street	D	A	9.5	0.509	10.8	B+	10.0	0.503	11.5
5	Lafayette Street / El Camino Real <sup>1</sup>	E	D	41.1	0.754	46.6	D+	38.9	0.630	39.5

<sup>1</sup> Lafayette Street / Central Expressway (#1) and Lafayette Street / El Camino Real (#5) are CMP intersections with LOS E threshold

## TRIP GENERATION

The number of project trips for the proposed project was estimated using the industry standard Institute of Transportation Engineers (ITE) *Trip Generation, 9<sup>th</sup> Edition*. This reference estimates project trips based on survey data for a land use category. For the proposed project, the average rates were used to estimate the number of project trips for ITE Land Use 160, Data Center. **Table 2** presents the trip generation for the proposed project. It should be noted that only square footage for the main buildings were used since the substation will be separate from the main building and would not generate any additional external trips.

Table 2: Trip Generation for Proposed Project

ITE Land Use Code	Land Use	Size	Units	Daily Trips	AM Peak			PM Peak		
					Total	In	Out	Total	In	Out
160	Data Center	413	KSF	410	37	19	18	37	8	29

As shown in **Table 2**, the proposed project is projected to generate approximately 410 daily trips, 37 trips in the AM peak hour, and 37 trips in the PM peak hour. It should be noted that the number of trips the project will generate during the AM or PM peak hour is under the 100 net new peak hour trip threshold<sup>1</sup> to warrant the completion of a traffic impact analysis according to VTA guidelines. These trip generation results also warrant comparison to the employee estimates noted above, as the daytime employee count and delivery schedule should result in actual site trips less than the ITE estimate.

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<sup>1</sup> Santa Clara Valley Transportation Authority. *Transportation Impact Analysis Guidelines*. Oct 2014.

## TRIP DISTRIBUTION AND ASSIGNMENT

Project trip distribution was developed based on existing traffic count information and general orientation of population centers to the site. Project trips were assigned to the network based on the assumed trip distribution as shown in **Attachment D**.

## EXISTING PLUS PROJECT CONDITIONS

Traffic operations were evaluated at the study intersections under existing conditions plus traffic generated by the project as shown in **Attachment E**. Results of the analysis are presented in **Table 3**. All study intersections function within acceptable LOS standards under this analysis scenario. Thus, the project has a less than significant impact at all study intersections and no mitigation measures are required. Analysis sheets are provided in **Attachment C**.

Table 3: Existing Plus Project Level of Service Summary

Intersection	LOS Criteria	Jurisdiction	Control	Existing Plus Project											
				AM Peak						PM Peak					
				LOS	Delay (sec)	v/c Ratio	v/c Var.	Crit. Delay	Crit. Delay Var.	LOS	Delay (sec)	v/c Ratio	v/c Var.	Crit. Delay	Crit. Delay Var.
Lafayette Street / Central Expressway <sup>1</sup>	E	County	Signal	E+	59.2	0.485	0.002	68.3	0.4	E	62.5	0.792	0.002	62.3	0.1
Lafayette Street / Walsh Avenue	D	City	Signal	B	12.4	0.498	0.003	9.2	0.0	B-	18.6	0.643	0.001	19.2	0.0
Lafayette Street / Martin Avenue	D	City	Signal	B-	19.7	0.561	0.002	18.9	0.0	B-	19.4	0.561	0.002	16.7	0.0
Lafayette Street / Memorex Drive - Mathew Street	D	City	Signal	A	9.8	0.523	0.014	11.2	0.4	B+	10.5	0.522	0.019	12.1	0.6
Lafayette Street / El Camino Real <sup>1</sup>	E	County	Signal	D	41.2	0.759	0.005	46.7	0.1	D+	39.0	0.634	0.004	39.5	0.0

Lafayette Street / Central Expressway (#1) and Lafayette Street / El Camino Real (#5) are CMP intersections with LOS E threshold

## ON-SITE CIRCULATION, QUEUING, AND PARKING

On-site vehicular circulation, queuing, and parking for the site were reviewed.

### ON-SITE CIRCULATION

As shown on the site plan, **Attachment A**, the full build out site for the project will have four gated driveways. Most vehicles will enter and exit the site through the two middle driveways. Service vehicles will utilize the service entry at the east and west ends of the site. The service vehicles will drive around the north end of the site and exit through the middle exit driveway. Truck turning movements at these driveways were checked and found to be adequate, as shown in **Attachment F**.

### ON-SITE QUEUING

Queue lengths were evaluated for the southbound and eastbound approaches at the central project driveways. The queue length for the southbound approach at the project driveway was evaluated to determine if the driveway throat length is long enough to store potential queued vehicles exiting the site. Based on site plans dated September 15, 2016, the driveway throat length is approximately 95 feet or 4 vehicles (assuming a typical vehicle length of 25 feet). The queue length for the eastbound approach was also evaluated to determine if potential queuing due to vehicles making an eastbound left into the site could potentially block traffic along Mathew Street.

For the queuing analysis, the 95<sup>th</sup> percentile queue length for the southbound and eastbound approaches at the main driveway was determined by following the HCM 2000 methodology within the *Synchro* software. The 95<sup>th</sup> percentile queue was used to account for fluctuation in traffic and represent a condition where 95 percent of the time, traffic queues would be less than or equal to the queue determined by the analysis.

**Table 4** summarizes the 95<sup>th</sup> percentile queue lengths at the project exit driveway. The 95<sup>th</sup> percentile queue lengths at the southbound approach are 1 vehicle during both the AM and PM peak which is less than the available storage of 4 vehicles. For the eastbound approach, the 95<sup>th</sup> percentile queue is 1 vehicle during the AM peak and there is no queue during the PM peak. Based on the queuing analysis, the queue lengths for both southbound and eastbound approaches are minimal, and therefore the project does not cause any queuing impacts. Analysis sheets are provided in **Attachment C**.

*Table 4: 95th Percentile Queue Lengths*

<b>Approach</b>	<b>Storage Length</b>	<b>95<sup>th</sup> Percentile Queue</b>	
		<b>AM Peak</b>	<b>PM Peak</b>
Southbound	4 vehicles	1 vehicle	1 vehicle
Eastbound	-	1 vehicle	0 vehicle

## PARKING

Section 18.74 of the Santa Clara City Code establishes minimum requirements for off-street parking.

### Number of parking spaces

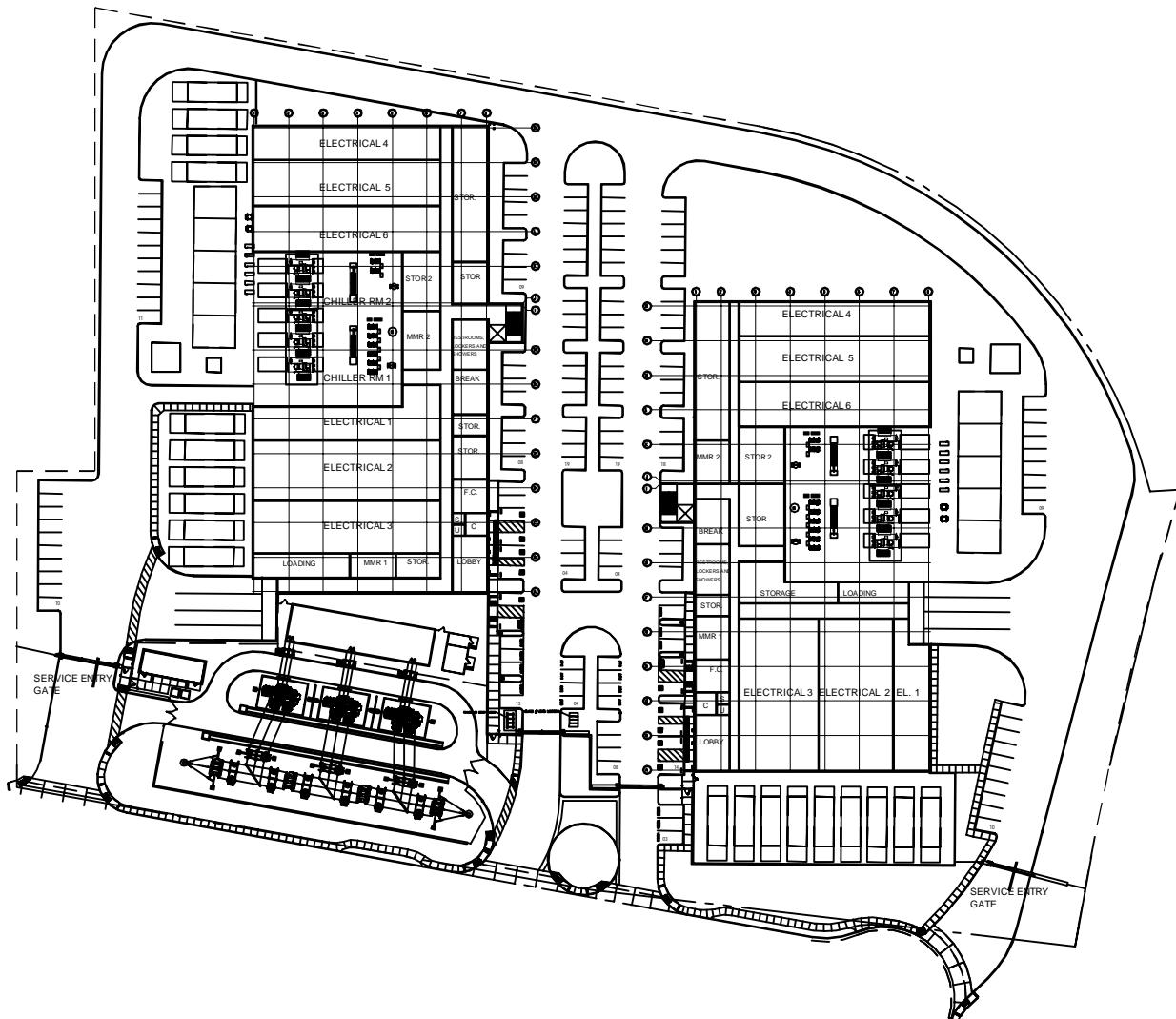
The Santa Clara City Code does not have a required minimum number of parking spaces for a data center, however the proposed project is estimated to provide enough parking for its employees and visitors. If it is conservatively assumed that each of the 29 employees all arrive on-site at the same time and each drives individually, this would require 29 parking spaces for the employees. The project proposes 162 parking spaces, which would allow for 133 parking spaces for visitors to the project site. It is not anticipated that 133 parking spaces will be necessary for visitors to the site on a consistent basis. Therefore, the proposed number of parking spaces is adequate.

### Parking dimensions

The parking spaces at the proposed site will be 90-degree parking stalls and according to section 18.74.030 of the City Code, standard 90-degree parking stalls must be a minimum of 9 feet wide by 18 feet long, with an aisle of 20 feet. The project proposes parking spaces that are 9 feet wide and 16.5 feet long stalls and 26 feet aisles. The City Code does allow for 2 feet of overhang, therefore, the proposed parking lot design does meet the City's requirements.

## CONCLUSION

Based on the results of the traffic analysis, there is a less than significant transportation impact due to the proposed project. The proposed project will generate approximately 37 trips in the AM peak hour, and 37 trips in the PM peak hour, which are under VTA's 100-trip threshold to warrant a traffic impact analysis. The level of service (LOS) analysis concluded that the proposed data center will have a less than significant impact on the transportation network. On-site circulation was reviewed and determined that the site plan provides adequate space for trucks entering and leaving the site, as well as minimal queuing due to vehicles entering or leaving the site. The project provides 162 parking spaces, which is expected to accommodate the parking demand.



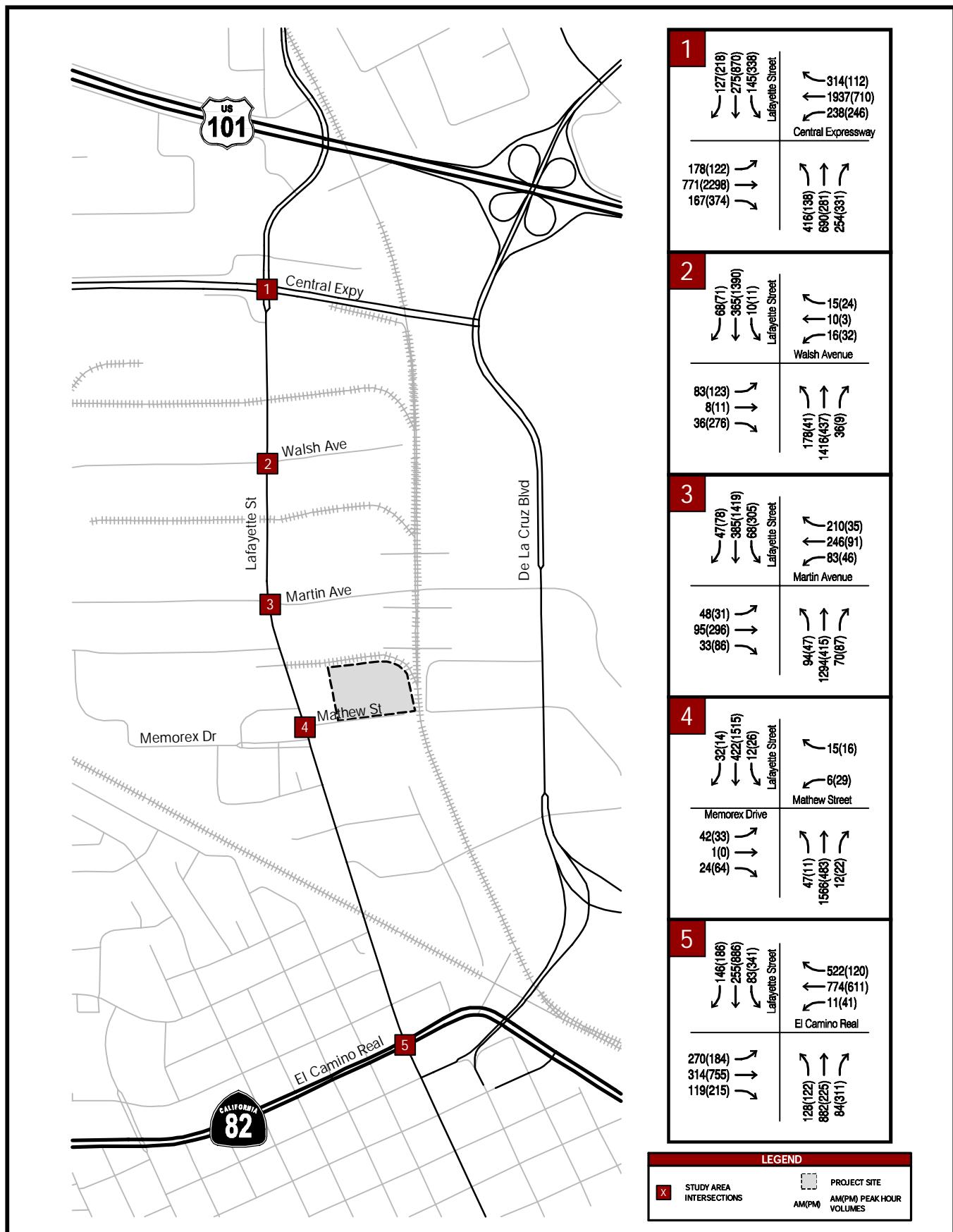
SOURCE: CAC ARCHITECTS

**Kimley»Horn**



NOT TO SCALE

**ATTACHMENT A  
SITE PLAN**



**Kimley»Horn**



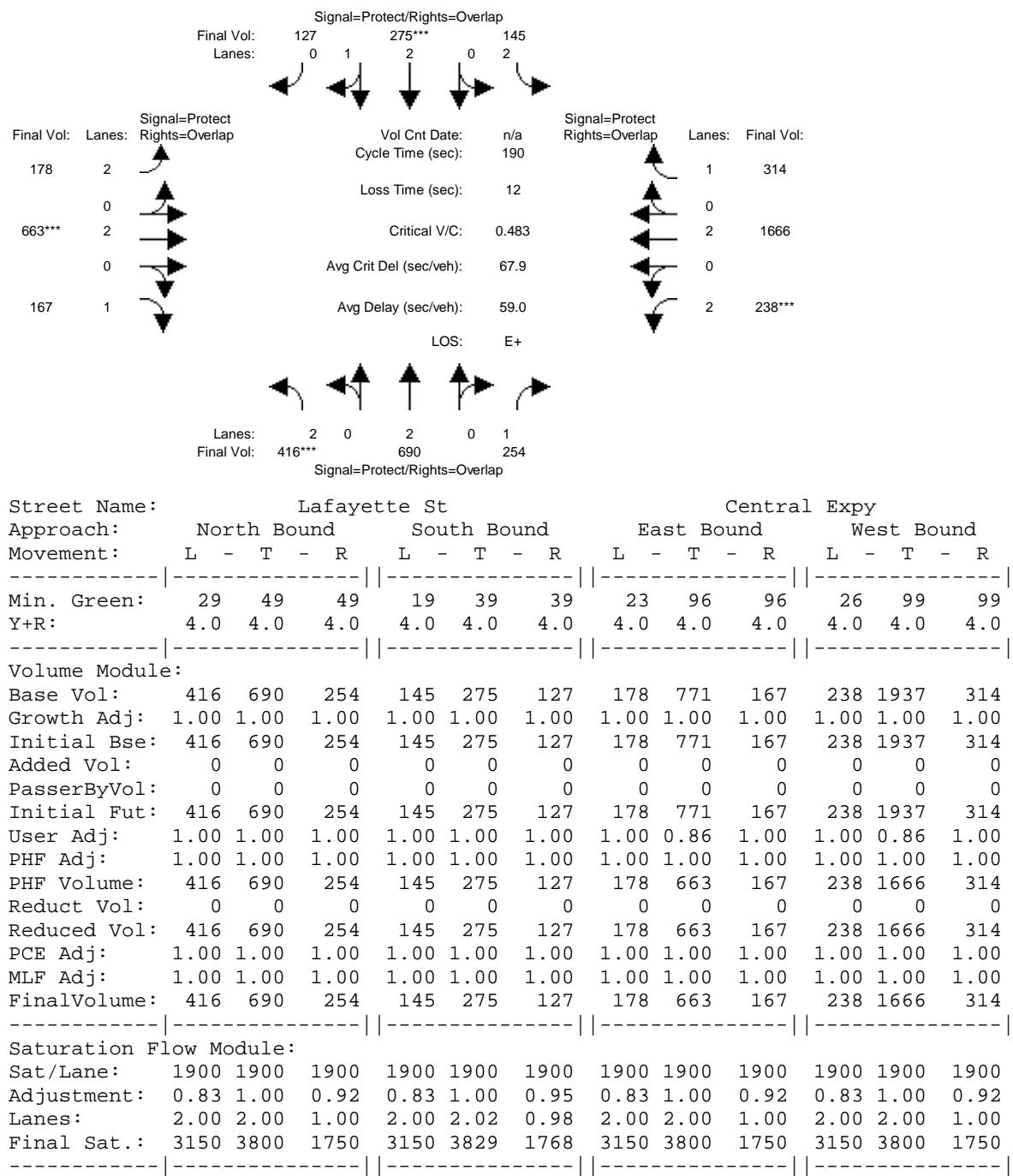
**ATTACHMENT B**  
**EXISTING CONDITION**  
**PEAK HOUR TURNING MOVEMENT VOLUMES**

## Attachment C: Analysis Outputs

City of Santa Clara  
Vantage Data Center  
197021001

Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
Ex AM Peak

## Intersection #1: Lafayette St/Central Expy



Note: Queue reported is the distance per lane in feet.

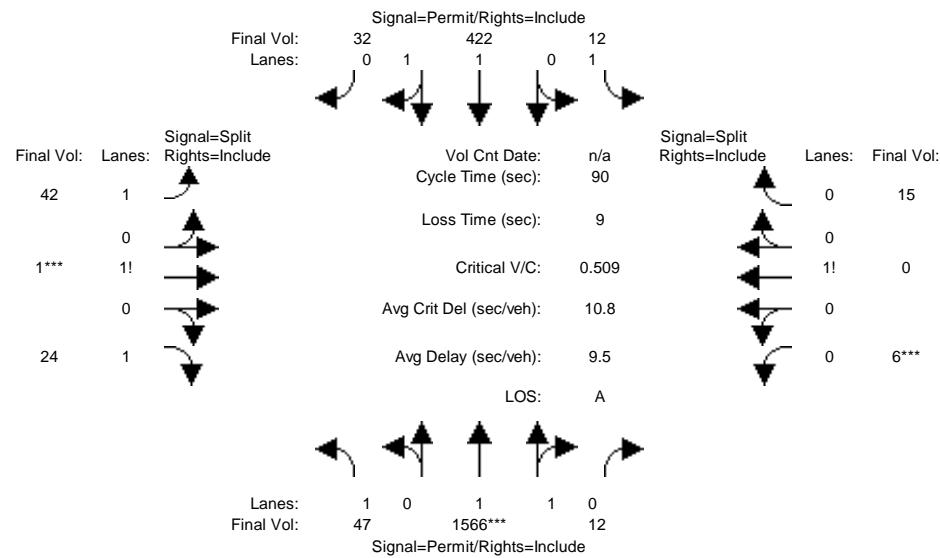




City of Santa Clara  
Vantage Data Center  
197021001

Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
Ex AM Peak

Intersection #4: Lafayette St/Mathew St-Memorex Dr



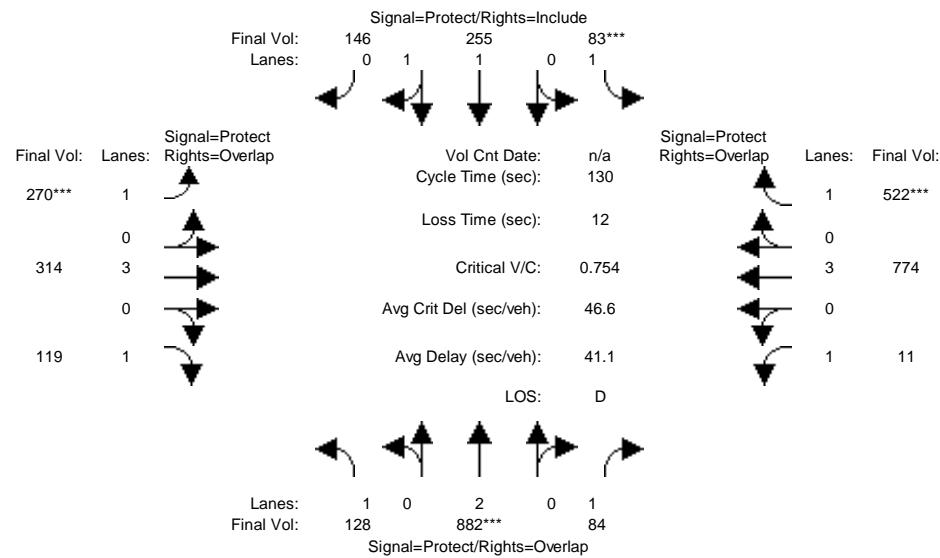
Street Name:	Lafayette St				Mathew St - Memorex Dr											
Approach:	North Bound		South Bound		East Bound		West Bound									
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Volume Module:																
Base Vol:	47	1566	12	12	422	32	42	1	24	6	0	15				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	47	1566	12	12	422	32	42	1	24	6	0	15				
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	47	1566	12	12	422	32	42	1	24	6	0	15				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	47	1566	12	12	422	32	42	1	24	6	0	15				
Reducet Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	47	1566	12	12	422	32	42	1	24	6	0	15				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	47	1566	12	12	422	32	42	1	24	6	0	15				
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Adjustment:	0.92	0.97	0.95	0.92	0.98	0.95	0.92	0.92	0.92	0.92	0.92	0.92				
Lanes:	1.00	1.98	0.02	1.00	1.86	0.14	1.62	0.03	1.35	0.29	0.00	0.71				
Final Sat.:	1750	3672	28	1750	3439	261	2831	51	2368	500	0	1250				
Capacity Analysis Module:																
Vol/Sat:	0.03	0.43	0.43	0.01	0.12	0.12	0.01	0.02	0.01	0.01	0.00	0.01				
Crit Moves:																
Green Time:	61.0	61.0	61.0	61.0	61.0	61.0	10.0	10.0	10.0	10.0	10.0	10.0				
Volume/Cap:	0.04	0.63	0.63	0.01	0.18	0.18	0.13	0.17	0.09	0.11	0.00	0.11				
Delay/Veh:	4.9	9.4	9.4	4.7	5.5	5.5	36.6	37.3	36.2	37.1	0.0	37.1				
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	4.9	9.4	9.4	4.7	5.5	5.5	36.6	37.3	36.2	37.1	0.0	37.1				
LOS by Move:	A	A	A	A	A	A	D+	D+	D+	D+	A	D+				
HCM2kAvgQ:	11	317	317	3	61	61	20	26	13	16	0	16				

Note: Queue reported is the distance per lane in feet.

City of Santa Clara  
Vantage Data Center  
197021001

Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
Ex AM Peak

Intersection #5: Lafayette St/El Camino Real



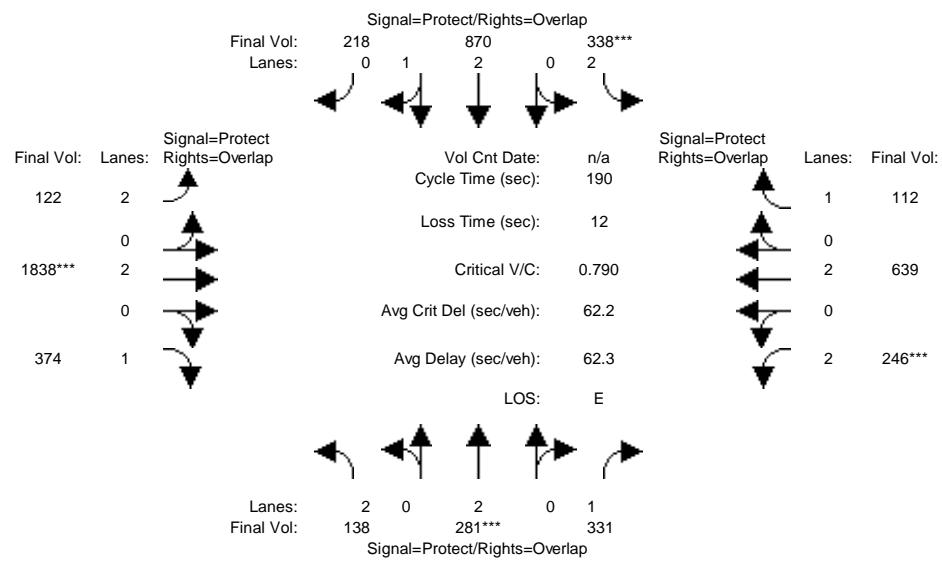
Street Name: Lafayette St El Camino Real																		
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R			
Min. Green:	7		10		10		7		10		10		7		10		10	
Y+R:	4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0	
Volume Module:	<hr/>																	
Base Vol:	128	882	84	83	255	146	270	314	119	11	774	522						
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Initial Bse:	128	882	84	83	255	146	270	314	119	11	774	522						
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0						
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0						
Initial Fut:	128	882	84	83	255	146	270	314	119	11	774	522						
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
PHF Volume:	128	882	84	83	255	146	270	314	119	11	774	522						
Reducet Vol:	0	0	0	0	0	0	0	0	0	0	0	0						
Reduced Vol:	128	882	84	83	255	146	270	314	119	11	774	522						
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
FinalVolume:	128	882	84	83	255	146	270	314	119	11	774	522						
Saturation Flow Module:	<hr/>																	
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900						
Adjustment:	0.92	1.00	0.92	0.92	0.99	0.95	0.92	1.00	0.92	0.92	1.00	0.92						
Lanes:	1.00	2.00	1.00	1.00	1.25	0.75	1.00	3.00	1.00	1.00	3.00	1.00						
Final Sat.:	1750	3800	1750	1750	2352	1347	1750	5700	1750	1750	5700	1750						
Capacity Analysis Module:	<hr/>																	
Vol/Sat:	0.07	0.23	0.05	0.05	0.11	0.11	0.15	0.06	0.07	0.01	0.14	0.30						
Crit Moves:	****			****			****			****								
Green Time:	19.4	40.0	68.3	8.2	28.8	28.8	26.6	40.4	59.8	28.3	42.1	50.3						
Volume/Cap:	0.49	0.75	0.09	0.75	0.49	0.49	0.75	0.18	0.15	0.03	0.42	0.77						
Delay/Veh:	52.2	43.4	15.4	85.1	44.7	44.7	57.4	32.7	20.4	40.1	34.5	40.2						
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
AdjDel/Veh:	52.2	43.4	15.4	85.1	44.7	44.7	57.4	32.7	20.4	40.1	34.5	40.2						
LOS by Move:	D-	D	B	F	D	D	E+	C-	C+	D	C-	D						
HCM2kAvgQ:	138	426	44	96	174	174	312	74	72	9	200	521						

Note: Queue reported is the distance per lane in feet.

City of Santa Clara  
Vantage Data Center  
197021001

Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
EX PM Peak

Intersection #1: Lafayette St/Central Expy



Street Name:

Lafayette St

Central Expy

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

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Min. Green: 18 35 35 23 39 39 19 112 112 21 113 113

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

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Volume Module:

Base Vol: 138 281 331 338 870 218 122 2298 374 246 710 112

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 138 281 331 338 870 218 122 2298 374 246 710 112

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 138 281 331 338 870 218 122 2298 374 246 710 112

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.80 1.00 1.00 0.90 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 138 281 331 338 870 218 122 1838 374 246 639 112

Reduc Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 138 281 331 338 870 218 122 1838 374 246 639 112

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

FinalVolume: 138 281 331 338 870 218 122 1838 374 246 639 112

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Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.83 1.00 0.92 0.83 0.99 0.95 0.83 1.00 0.92 0.83 1.00 0.92

Lanes: 2.00 2.00 1.00 2.00 2.38 0.62 2.00 2.00 1.00 2.00 2.00 1.00

Final Sat.: 3150 3800 1750 3150 4476 1122 3150 3800 1750 3150 3800 1750

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Capacity Analysis Module:

Vol/Sat: 0.04 0.07 0.19 0.11 0.19 0.19 0.04 0.48 0.21 0.08 0.17 0.06

Crit Moves: \*\*\*\* \* \*\*\* \* \*\*\*\* \* \*\*\*\* \*

Green Time: 17.0 32.8 52.4 21.5 37.3 55.2 17.9 105 121.8 19.7 107 128.1

Volume/Cap: 0.49 0.43 0.69 0.95 0.99 0.67 0.41 0.88 0.33 0.75 0.30 0.09

Delay/Veh: 89.3 75.5 69.7 123.4 106 64.5 87.5 44.0 16.8 98.1 23.6 11.5

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 89.3 75.5 69.7 123.4 106 64.5 87.5 44.0 16.8 98.1 23.6 11.5

LOS by Move: F E- E F F E F D B F C B+

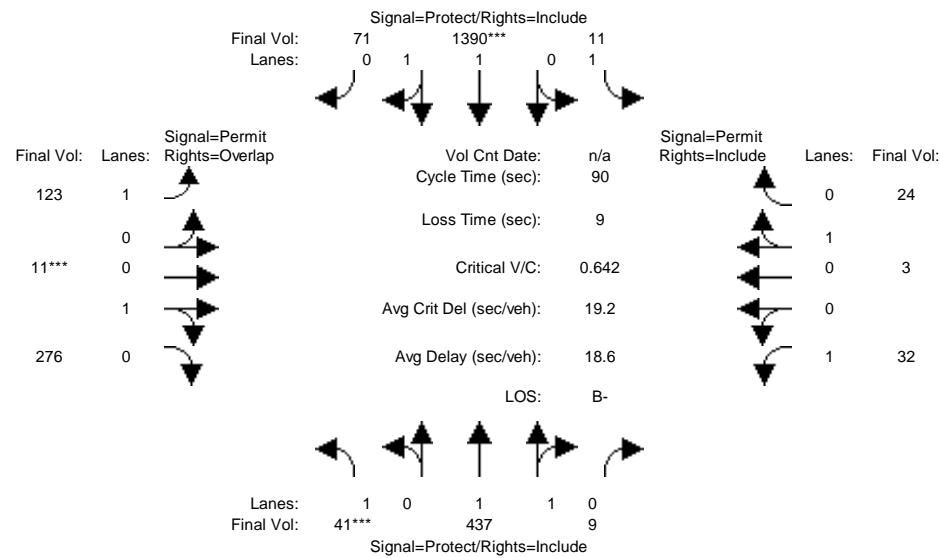
HCM2kAvgQ: 120 187 490 395 684 505 114 1259 274 260 248 62

Note: Queue reported is the distance per lane in feet.

City of Santa Clara  
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EX PM Peak

Intersection #2: Lafayette St/Walsh Ave



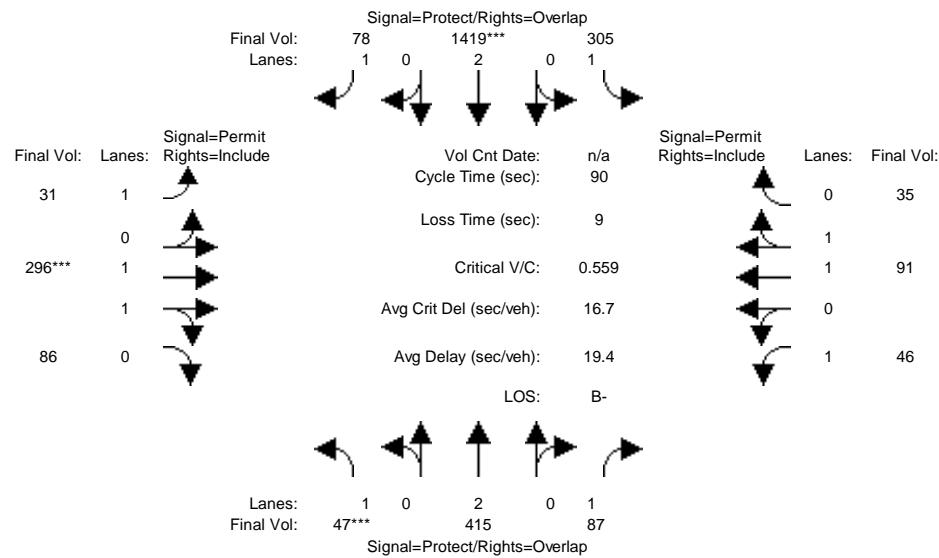
Street Name:	Lafayette St				Walsh Ave											
Approach:	North Bound			South Bound			East Bound		West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10	10	10	10	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Volume Module:																
Base Vol:	41	437	9	11	1390	71	123	11	276	32	3	24				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	41	437	9	11	1390	71	123	11	276	32	3	24				
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	41	437	9	11	1390	71	123	11	276	32	3	24				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	41	437	9	11	1390	71	123	11	276	32	3	24				
Reducet Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	41	437	9	11	1390	71	123	11	276	32	3	24				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	41	437	9	11	1390	71	123	11	276	32	3	24				
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.97	0.95	0.92	0.98	0.95	0.92	0.95	0.95	0.92	0.95	0.95	0.92	0.95	0.95	0.95
Lanes:	1.00	1.96	0.04	1.00	1.90	0.10	1.00	0.04	0.96	1.00	0.11	0.89				
Final Sat.:	1750	3625	75	1750	3520	180	1750	69	1731	1750	200	1600				
Capacity Analysis Module:																
Vol/Sat:	0.02	0.12	0.12	0.01	0.39	0.39	0.07	0.16	0.16	0.02	0.02	0.02				
Crit Moves:	****			****			****									
Green Time:	7.0	36.3	36.3	23.4	52.7	52.7	21.3	21.3	28.3	21.3	21.3	21.3				
Volume/Cap:	0.30	0.30	0.30	0.02	0.67	0.67	0.30	0.67	0.51	0.08	0.06	0.06				
Delay/Veh:	44.8	18.7	18.7	24.9	14.5	14.5	30.0	39.5	28.4	27.1	26.9	26.9				
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	44.8	18.7	18.7	24.9	14.5	14.5	30.0	39.5	28.4	27.1	26.9	26.9				
LOS by Move:	D	B-	B-	C	B	B	C	D	C	C	C	C				
HCM2kAvgQ:	29	106	106	6	328	328	79	219	180	19	15	15				

Note: Queue reported is the distance per lane in feet.

City of Santa Clara  
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EX PM Peak

Intersection #3: Lafayette St/Martin Ave



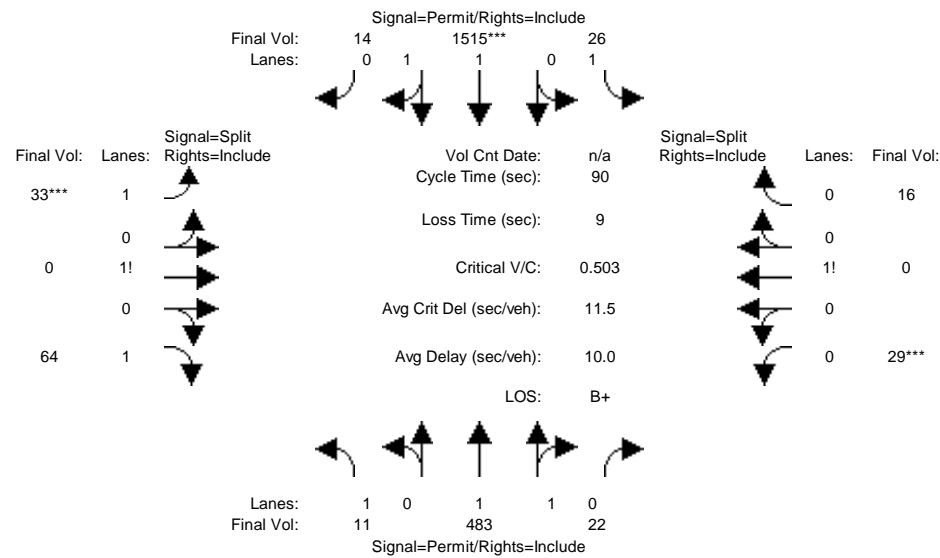
Street Name: Lafayette St Martin Ave															
Approach:	North Bound			South Bound			East Bound			West Bound					
	Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-
Min. Green:		7	10	10	7	10	10	10	10	10	10	10	10	10	10
Y+R:		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:															
Base Vol:		47	415	87	305	1419	78	31	296	86	46	91	35		
Growth Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Initial Bse:		47	415	87	305	1419	78	31	296	86	46	91	35		
Added Vol:		0	0	0	0	0	0	0	0	0	0	0	0		
PasserByVol:		0	0	0	0	0	0	0	0	0	0	0	0		
Initial Fut:		47	415	87	305	1419	78	31	296	86	46	91	35		
User Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Volume:		47	415	87	305	1419	78	31	296	86	46	91	35		
Reducet Vol:		0	0	0	0	0	0	0	0	0	0	0	0		
Reduced Vol:		47	415	87	305	1419	78	31	296	86	46	91	35		
PCE Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
MLF Adj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
FinalVolume:		47	415	87	305	1419	78	31	296	86	46	91	35		
Saturation Flow Module:															
Sat/Lane:		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Adjustment:		0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.98	0.95	0.92	0.98	0.95		
Lanes:		1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.54	0.46	1.00	1.43	0.57		
Final Sat.:		1750	3800	1750	1750	3800	1750	1750	2866	833	1750	2671	1027		
Capacity Analysis Module:															
Vol/Sat:		0.03	0.11	0.05	0.17	0.37	0.04	0.02	0.10	0.10	0.03	0.03	0.03		
Crit Moves:		****		****		****		****							
Green Time:		7.0	25.3	25.3	39.7	58.0	58.0	16.0	16.0	16.0	16.0	16.0	16.0		
Volume/Cap:		0.35	0.39	0.18	0.40	0.58	0.07	0.10	0.58	0.58	0.15	0.19	0.19		
Delay/Veh:		46.1	27.2	25.3	18.6	10.1	6.1	31.6	37.6	37.6	32.2	32.1	32.1		
User DelAdj:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
AdjDel/Veh:		46.1	27.2	25.3	18.6	10.1	6.1	31.6	37.6	37.6	32.2	32.1	32.1		
LOS by Move:	D	C	C	B-	B+	A	C	D+	D+	C-	C-	C-			
HCM2kAvgQ:	34	116	49	151	282	21	20	145	145	31	40	40			

Note: Queue reported is the distance per lane in feet.

City of Santa Clara  
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Level Of Service Computation Report  
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EX PM Peak

Intersection #4: Lafayette St/Mathew St-Memorex Dr



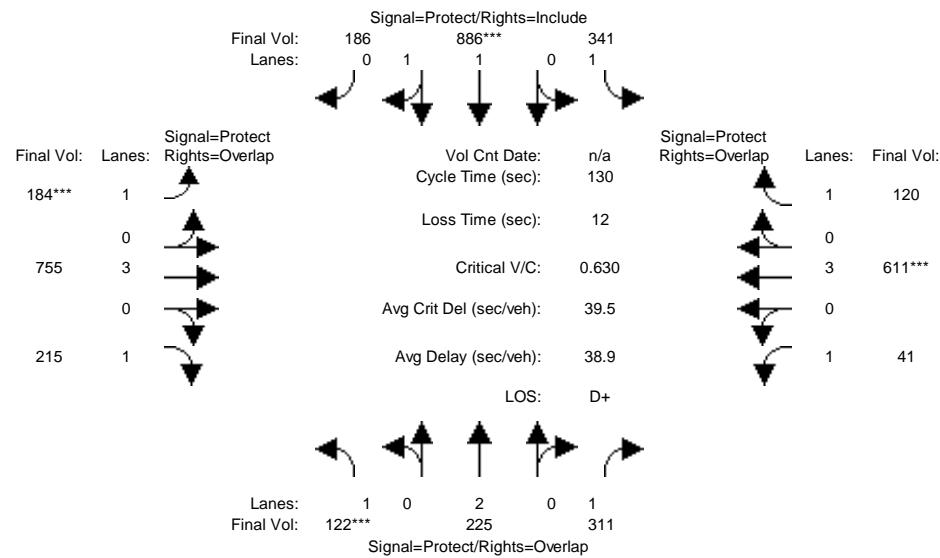
Street Name:	Lafayette St				Mathew St - Memorex Dr											
Approach:	North Bound		South Bound		East Bound		West Bound									
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Volume Module:																
Base Vol:	11	483	22	26	1515	14	33	0	64	29	0	16				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	483	22	26	1515	14	33	0	64	29	0	16				
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	483	22	26	1515	14	33	0	64	29	0	16				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	11	483	22	26	1515	14	33	0	64	29	0	16				
Reducet Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	11	483	22	26	1515	14	33	0	64	29	0	16				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	11	483	22	26	1515	14	33	0	64	29	0	16				
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Adjustment:	0.92	0.97	0.95	0.92	0.97	0.95	0.92	1.00	0.92	0.92	0.92	0.92				
Lanes:	1.00	1.91	0.09	1.00	1.98	0.02	1.34	0.00	1.66	0.64	0.00	0.36				
Final Sat.:	1750	3539	161	1750	3666	34	2345	0	2905	1128	0	622				
Capacity Analysis Module:																
Vol/Sat:	0.01	0.14	0.14	0.01	0.41	0.41	0.01	0.00	0.02	0.03	0.00	0.03				
Crit Moves:																
Green Time:	61.0	61.0	61.0	61.0	61.0	61.0	10.0	0.0	10.0	10.0	0.0	10.0				
Volume/Cap:	0.01	0.20	0.20	0.02	0.61	0.61	0.13	0.00	0.20	0.23	0.00	0.23				
Delay/Veh:	4.7	5.6	5.6	4.8	9.1	9.1	36.4	0.0	37.3	39.3	0.0	39.3				
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	4.7	5.6	5.6	4.8	9.1	9.1	36.4	0.0	37.3	39.3	0.0	39.3				
LOS by Move:	A	A	A	A	A	A	D+	A	D+	D	A	D				
HCM2kAvgQ:	3	69	69	6	310	310	19	0	30	35	0	35				

Note: Queue reported is the distance per lane in feet.

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EX PM Peak

Intersection #5: Lafayette St/El Camino Real



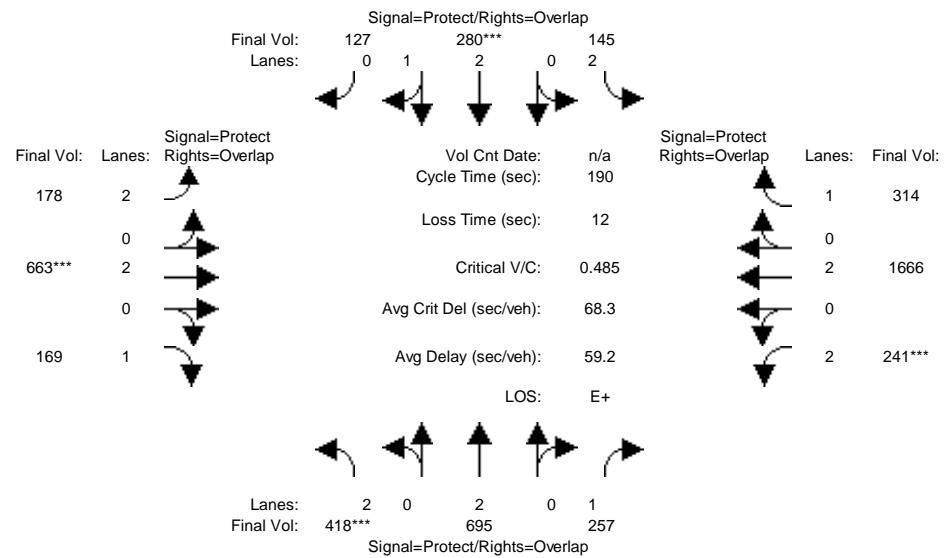
Street Name:	Lafayette St						El Camino Real								
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Min. Green:	7	10	10	7	10	10	7	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:	<hr/>														
Base Vol:	122	225	311	341	886	186	184	755	215	41	611	120			
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Initial Bse:	122	225	311	341	886	186	184	755	215	41	611	120			
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0			
Initial Fut:	122	225	311	341	886	186	184	755	215	41	611	120			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Volume:	122	225	311	341	886	186	184	755	215	41	611	120			
Reducet Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
Reduced Vol:	122	225	311	341	886	186	184	755	215	41	611	120			
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
FinalVolume:	122	225	311	341	886	186	184	755	215	41	611	120			
Saturation Flow Module:	<hr/>														
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Adjustment:	0.92	1.00	0.92	0.92	0.98	0.95	0.92	1.00	0.92	0.92	1.00	0.92			
Lanes:	1.00	2.00	1.00	1.00	1.64	0.36	1.00	3.00	1.00	1.00	3.00	1.00			
Final Sat.:	1750	3800	1750	1750	3058	642	1750	5700	1750	1750	5700	1750			
Capacity Analysis Module:	<hr/>														
Vol/Sat:	0.07	0.06	0.18	0.19	0.29	0.29	0.11	0.13	0.12	0.02	0.11	0.07			
Crit Moves:	****		****		****		****		****		****				
Green Time:	14.4	32.8	45.4	41.4	59.8	59.8	21.7	31.2	45.5	12.7	22.1	63.5			
Volume/Cap:	0.63	0.23	0.51	0.61	0.63	0.63	0.63	0.55	0.35	0.24	0.63	0.14			
Delay/Veh:	61.8	38.8	34.1	39.5	27.5	27.5	54.8	43.8	31.6	55.0	51.5	18.3			
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
AdjDel/Veh:	61.8	38.8	34.1	39.5	27.5	27.5	54.8	43.8	31.6	55.0	51.5	18.3			
LOS by Move:	E	D+	C-	D	C	C	D-	D	C	D-	D-	B-			
HCM2kAvgQ:	151	88	266	301	403	403	206	229	169	45	209	69			

Note: Queue reported is the distance per lane in feet.

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Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
EX+P AM

Intersection #1: Lafayette St/Central Expy



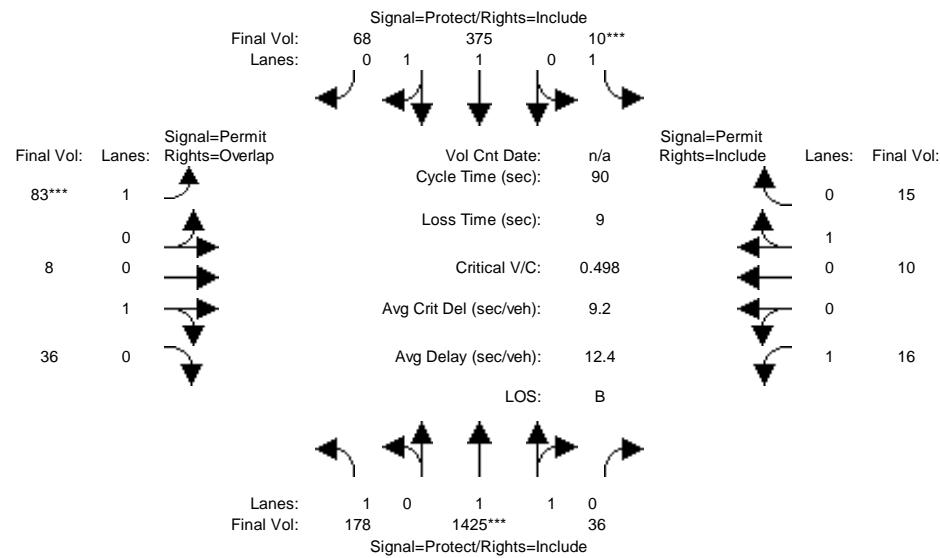
Street Name: Lafayette St Central Expy												
Approach:	North Bound			South Bound			East Bound			West Bound		
	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	29	49	49	19	39	39	23	96	96	26	99	99
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	416	690	254	145	275	127	178	771	167	238	1937	314
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	416	690	254	145	275	127	178	771	167	238	1937	314
Added Vol:	2	5	3	0	5	0	0	0	2	3	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	418	695	257	145	280	127	178	771	169	241	1937	314
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.86	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	418	695	257	145	280	127	178	663	169	241	1666	314
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	418	695	257	145	280	127	178	663	169	241	1666	314
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	418	695	257	145	280	127	178	663	169	241	1666	314
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.83	1.00	0.92	0.83	1.00	0.95	0.83	1.00	0.92	0.83	1.00	0.92
Lanes:	2.00	2.00	1.00	2.00	2.03	0.97	2.00	2.00	1.00	2.00	2.00	1.00
Final Sat.:	3150	3800	1750	3150	3850	1746	3150	3800	1750	3150	3800	1750
Capacity Analysis Module:												
Vol/Sat:	0.13	0.18	0.15	0.05	0.07	0.07	0.06	0.17	0.10	0.08	0.44	0.18
Crit Moves:	****			****			****		****	****		
Green Time:	27.3	46.1	70.5	17.9	36.7	58.3	21.6	90.3	117.6	24.5	93.1	111.0
Volume/Cap:	0.92	0.75	0.40	0.49	0.38	0.24	0.50	0.37	0.16	0.59	0.89	0.31
Delay/Veh:	110.2	74.5	47.2	88.2	71.1	52.4	85.1	33.8	16.3	85.4	52.8	21.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	110.2	74.5	47.2	88.2	71.1	52.4	85.1	33.8	16.3	85.4	52.8	21.5
LOS by Move:	F	E	D	F	E	D-	F	C-	B	F	D-	C+
HCM2kAvgQ:	413	491	300	139	183	153	165	310	113	225	1205	253

Note: Queue reported is the distance per lane in feet.

City of Santa Clara  
Vantage Data Center  
197021001

Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
EX+P AM

Intersection #2: Lafayette St/Walsh Ave



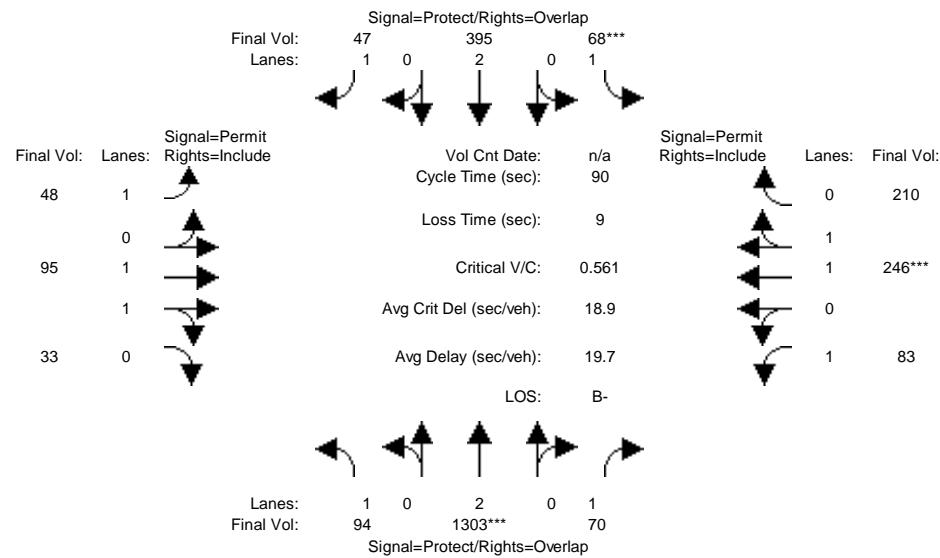
Street Name:	Lafayette St				Walsh Ave										
Approach:	North Bound			South Bound			East Bound		West Bound						
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10	10	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:	<hr/>														
Base Vol:	178	1416	36	10	365	68	83	8	36	16	10	15			
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	178	1416	36	10	365	68	83	8	36	16	10	15			
Added Vol:	0	9	0	0	10	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	178	1425	36	10	375	68	83	8	36	16	10	15			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	178	1425	36	10	375	68	83	8	36	16	10	15			
Reducet Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	178	1425	36	10	375	68	83	8	36	16	10	15			
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	178	1425	36	10	375	68	83	8	36	16	10	15			
Saturation Flow Module:	<hr/>														
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.97	0.95	0.92	0.98	0.95	0.92	0.95	0.95	0.92	0.95	0.95	0.92	0.95	0.95
Lanes:	1.00	1.95	0.05	1.00	1.68	0.32	1.00	0.18	0.82	1.00	0.40	0.60			
Final Sat.:	1750	3609	91	1750	3132	568	1750	327	1473	1750	720	1080			
Capacity Analysis Module:	<hr/>														
Vol/Sat:	0.10	0.39	0.39	0.01	0.12	0.12	0.05	0.02	0.02	0.01	0.01	0.01			
Crit Moves:	****	****	****				****								
Green Time:	32.6	64.0	64.0	7.0	38.4	38.4	10.0	10.0	42.6	10.0	10.0	10.0			
Volume/Cap:	0.28	0.56	0.56	0.07	0.28	0.28	0.43	0.22	0.05	0.08	0.13	0.13			
Delay/Veh:	21.5	7.1	7.1	39.5	17.3	17.3	44.0	39.0	12.9	36.7	37.3	37.3			
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
AdjDel/Veh:	21.5	7.1	7.1	39.5	17.3	17.3	44.0	39.0	12.9	36.7	37.3	37.3			
LOS by Move:	C+	A	A	D	B	B	D	D+	B	D+	D+	D+			
HCM2kAvgQ:	93	258	258	7	102	102	70	33	17	12	18	18			

Note: Queue reported is the distance per lane in feet.

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Intersection #3: Lafayette St/Martin Ave



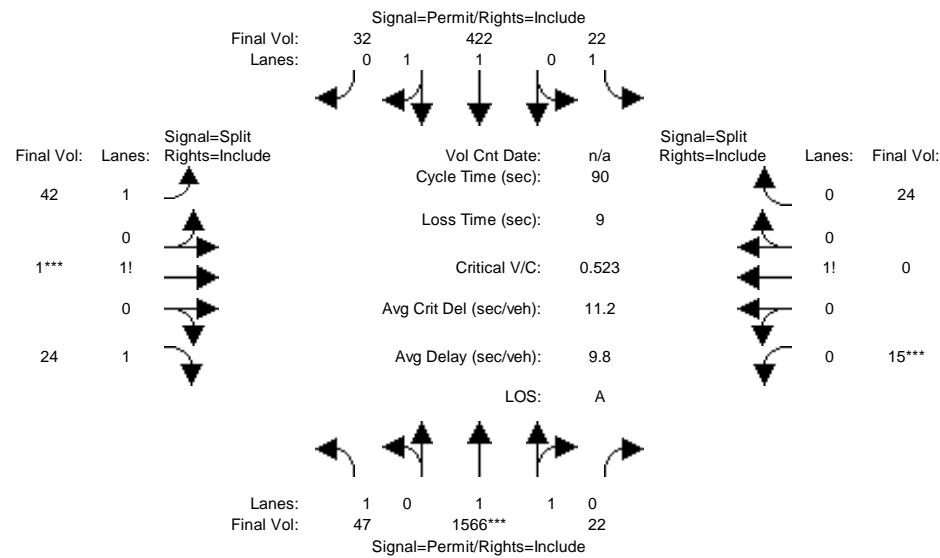
Street Name:	Lafayette St						Martin Ave								
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10	10	10	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Volume Module:	<hr/>														
Base Vol:	94	1294	70	68	385	47	48	95	33	83	246	210			
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Initial Bse:	94	1294	70	68	385	47	48	95	33	83	246	210			
Added Vol:	0	9	0	0	10	0	0	0	0	0	0	0	0		
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	0		
Initial Fut:	94	1303	70	68	395	47	48	95	33	83	246	210			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Volume:	94	1303	70	68	395	47	48	95	33	83	246	210			
Reducet Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0		
Reduced Vol:	94	1303	70	68	395	47	48	95	33	83	246	210			
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
FinalVolume:	94	1303	70	68	395	47	48	95	33	83	246	210			
Saturation Flow Module:	<hr/>														
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.98	0.95	0.92	1.00	0.95			
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.47	0.53	1.00	1.05	0.95			
Final Sat.:	1750	3800	1750	1750	3800	1750	1750	2745	954	1750	1995	1703			
Capacity Analysis Module:	<hr/>														
Vol/Sat:	0.05	0.34	0.04	0.04	0.10	0.03	0.03	0.03	0.03	0.05	0.12	0.12			
Crit Moves:	****													****	
Green Time:	25.3	54.4	54.4	7.0	36.1	36.1	19.6	19.6	19.6	19.6	19.6	19.6	19.6		
Volume/Cap:	0.19	0.57	0.07	0.50	0.26	0.07	0.13	0.16	0.16	0.22	0.57	0.57			
Delay/Veh:	25.4	11.7	7.4	52.3	18.4	16.7	29.0	29.0	29.0	30.2	34.3	34.3			
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
AdjDel/Veh:	25.4	11.7	7.4	52.3	18.4	16.7	29.0	29.0	29.0	30.2	34.3	34.3			
LOS by Move:	C	B+	A	D-	B-	B	C	C	C	C	C-	C-			
HCM2kAvgQ:	52	275	21	51	90	21	30	38	38	53	162	162			

Note: Queue reported is the distance per lane in feet.

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Intersection #4: Lafayette St/Mathew St-Memorex Dr



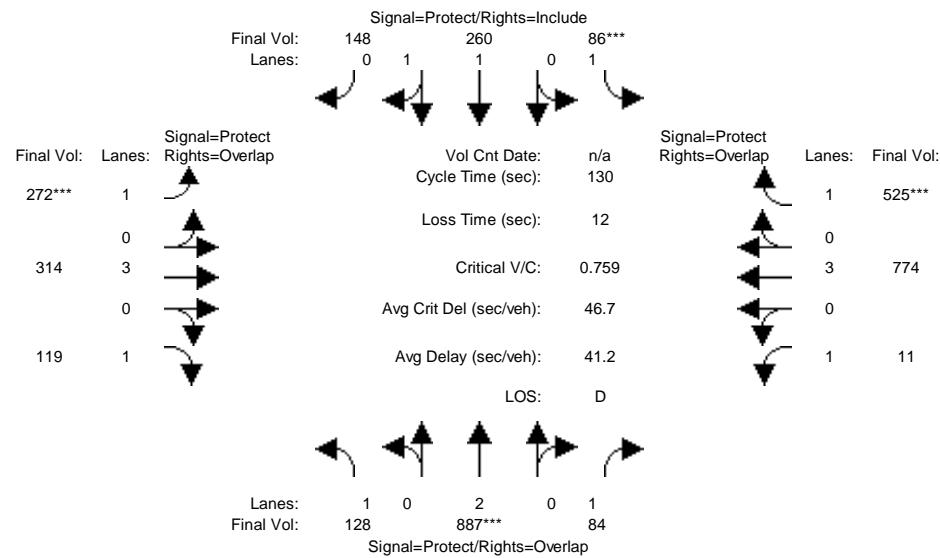
Street Name:	Lafayette St				Mathew St - Memorex Dr											
Approach:	North Bound		South Bound		East Bound		West Bound									
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	
Min. Green:	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Volume Module:																
Base Vol:	47	1566	12	12	422	32	42	1	24	6	0	15				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Initial Bse:	47	1566	12	12	422	32	42	1	24	6	0	15				
Added Vol:	0	0	10	10	0	0	0	0	0	9	0	9				
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0				
Initial Fut:	47	1566	22	22	422	32	42	1	24	15	0	24				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Volume:	47	1566	22	22	422	32	42	1	24	15	0	24				
Reducet Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
Reduced Vol:	47	1566	22	22	422	32	42	1	24	15	0	24				
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
FinalVolume:	47	1566	22	22	422	32	42	1	24	15	0	24				
Saturation Flow Module:																
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Adjustment:	0.92	0.97	0.95	0.92	0.98	0.95	0.92	0.92	0.92	0.92	0.92	0.92				
Lanes:	1.00	1.97	0.03	1.00	1.86	0.14	1.62	0.03	1.35	0.38	0.00	0.62				
Final Sat.:	1750	3649	51	1750	3439	261	2831	51	2368	673	0	1077				
Capacity Analysis Module:																
Vol/Sat:	0.03	0.43	0.43	0.01	0.12	0.12	0.01	0.02	0.01	0.02	0.00	0.02				
Crit Moves:																
Green Time:	61.0	61.0	61.0	61.0	61.0	61.0	10.0	10.0	10.0	10.0	0.0	10.0				
Volume/Cap:	0.04	0.63	0.63	0.02	0.18	0.18	0.13	0.17	0.09	0.20	0.00	0.20				
Delay/Veh:	4.9	9.4	9.4	4.8	5.5	5.5	36.6	37.3	36.2	38.7	0.0	38.7				
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
AdjDel/Veh:	4.9	9.4	9.4	4.8	5.5	5.5	36.6	37.3	36.2	38.7	0.0	38.7				
LOS by Move:	A	A	A	A	A	A	D+	D+	D+	D+	A	D+				
HCM2kAvgQ:	11	320	320	5	61	61	20	26	13	30	0	30				

Note: Queue reported is the distance per lane in feet.

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Intersection #5: Lafayette St/El Camino Real



Street Name: Lafayette St El Camino Real																		
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R			
Min. Green:	7		10		10		7		10		10		7		10		10	
Y+R:	4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0	
Volume Module:	<hr/>																	
Base Vol:	128	882	84	83	255	146	270	314	119	11	774	522						
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Initial Bse:	128	882	84	83	255	146	270	314	119	11	774	522						
Added Vol:	0	5	0	3	5	2	2	0	0	0	0	3						
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0						
Initial Fut:	128	887	84	86	260	148	272	314	119	11	774	525						
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
PHF Volume:	128	887	84	86	260	148	272	314	119	11	774	525						
Reducet Vol:	0	0	0	0	0	0	0	0	0	0	0	0						
Reduced Vol:	128	887	84	86	260	148	272	314	119	11	774	525						
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
FinalVolume:	128	887	84	86	260	148	272	314	119	11	774	525						
Saturation Flow Module:	<hr/>																	
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900						
Adjustment:	0.92	1.00	0.92	0.92	0.99	0.95	0.92	1.00	0.92	0.92	1.00	0.92						
Lanes:	1.00	2.00	1.00	1.00	1.25	0.75	1.00	3.00	1.00	1.00	3.00	1.00						
Final Sat.:	1750	3800	1750	1750	2357	1342	1750	5700	1750	1750	5700	1750						
Capacity Analysis Module:	<hr/>																	
Vol/Sat:	0.07	0.23	0.05	0.05	0.11	0.11	0.16	0.06	0.07	0.01	0.14	0.30						
Crit Moves:	****			****			****			****								
Green Time:	19.3	40.0	68.3	8.4	29.1	29.1	26.6	40.5	59.8	28.3	42.2	50.6						
Volume/Cap:	0.49	0.76	0.09	0.76	0.49	0.49	0.76	0.18	0.15	0.03	0.42	0.77						
Delay/Veh:	52.3	43.6	15.4	85.0	44.5	44.5	57.7	32.7	20.4	40.0	34.5	40.1						
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
AdjDel/Veh:	52.3	43.6	15.4	85.0	44.5	44.5	57.7	32.7	20.4	40.0	34.5	40.1						
LOS by Move:	D-	D	B	F	D	D	E+	C-	C+	D	C-	D						
HCM2kAvgQ:	138	430	44	99	177	177	316	74	72	9	200	523						

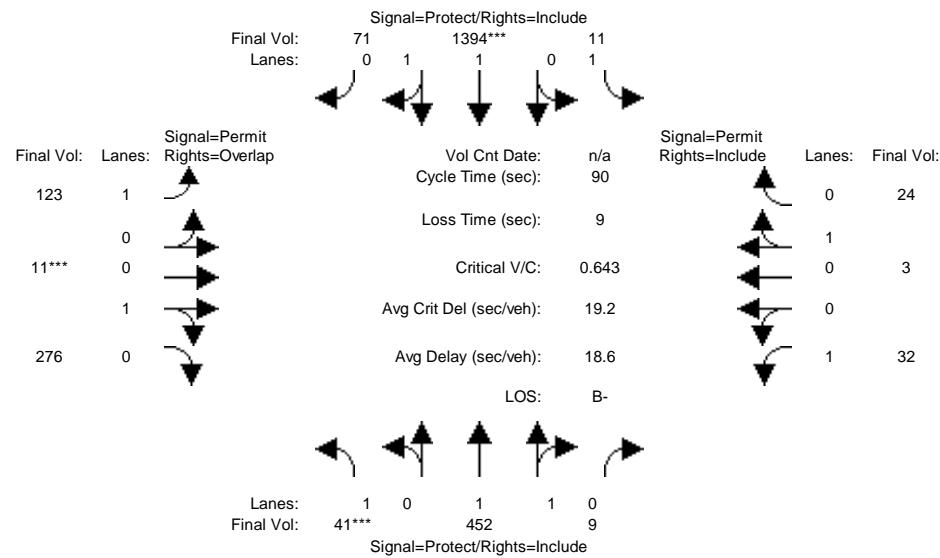
Note: Queue reported is the distance per lane in feet.



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Intersection #2: Lafayette St/Walsh Ave



Street Name:	Lafayette St						Walsh Ave								
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Min. Green:	7	10	10	7	10	10	10	10	10	10	10	10	10	10	
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Volume Module:															
Base Vol:	41	437	9	11	1390	71	123	11	276	32	3	24			
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Initial Bse:	41	437	9	11	1390	71	123	11	276	32	3	24			
Added Vol:	0	15	0	0	4	0	0	0	0	0	0	0	0	0	
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Initial Fut:	41	452	9	11	1394	71	123	11	276	32	3	24			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
PHF Volume:	41	452	9	11	1394	71	123	11	276	32	3	24			
Reducet Vol:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced Vol:	41	452	9	11	1394	71	123	11	276	32	3	24			
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
FinalVolume:	41	452	9	11	1394	71	123	11	276	32	3	24			
Saturation Flow Module:															
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Adjustment:	0.92	0.97	0.95	0.92	0.98	0.95	0.92	0.95	0.95	0.92	0.95	0.95	0.95		
Lanes:	1.00	1.96	0.04	1.00	1.90	0.10	1.00	0.04	0.96	1.00	0.11	0.89			
Final Sat.:	1750	3628	72	1750	3521	179	1750	69	1731	1750	200	1600			
Capacity Analysis Module:															
Vol/Sat:	0.02	0.12	0.12	0.01	0.40	0.40	0.07	0.16	0.16	0.02	0.02	0.02			
Crit Moves:	****			****			****								
Green Time:	7.0	36.8	36.8	23.0	52.8	52.8	21.2	21.2	28.2	21.2	21.2	21.2			
Volume/Cap:	0.30	0.30	0.30	0.02	0.68	0.68	0.30	0.68	0.51	0.08	0.06	0.06			
Delay/Veh:	44.8	18.5	18.5	25.2	14.5	14.5	30.1	39.6	28.5	27.1	27.0	27.0			
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
AdjDel/Veh:	44.8	18.5	18.5	25.2	14.5	14.5	30.1	39.6	28.5	27.1	27.0	27.0			
LOS by Move:	D	B-	B-	C	B	B	C	D	C	C	C	C			
HCM2kAvgQ:	29	110	110	6	329	329	79	219	180	19	16	16			

Note: Queue reported is the distance per lane in feet.

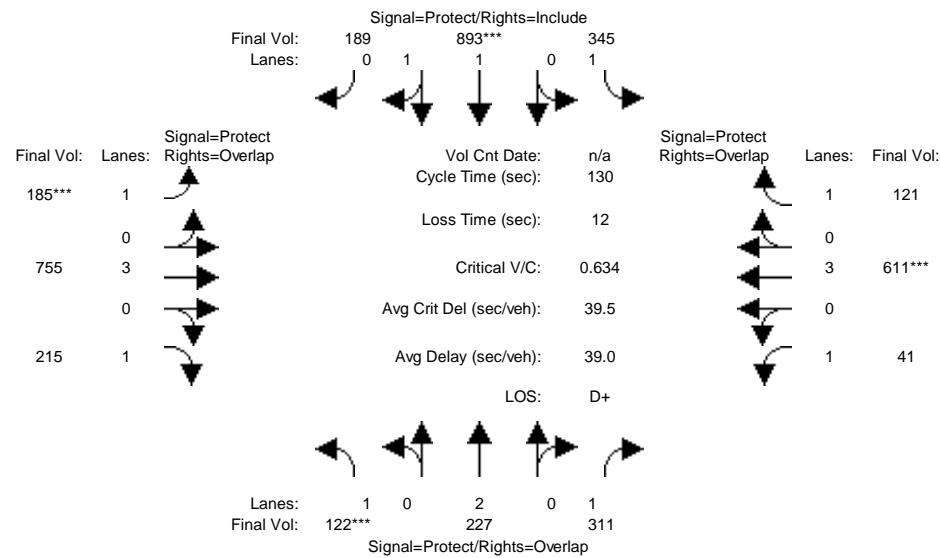




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Intersection #5: Lafayette St/El Camino Real



Street Name: Lafayette St El Camino Real																		
Approach:	North Bound			South Bound			East Bound			West Bound								
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R			
Min. Green:	7		10		10		7		10		10		7		10		10	
Y+R:	4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0	
Volume Module:	<hr/>																	
Base Vol:	122	225	311	341	886	186	184	755	215	41	611	120						
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Initial Bse:	122	225	311	341	886	186	184	755	215	41	611	120						
Added Vol:	0	2	0	4	7	3	1	0	0	0	0	1						
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0						
Initial Fut:	122	227	311	345	893	189	185	755	215	41	611	121						
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
PHF Volume:	122	227	311	345	893	189	185	755	215	41	611	121						
Reducet Vol:	0	0	0	0	0	0	0	0	0	0	0	0						
Reduced Vol:	122	227	311	345	893	189	185	755	215	41	611	121						
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
FinalVolume:	122	227	311	345	893	189	185	755	215	41	611	121						
Saturation Flow Module:	<hr/>																	
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900						
Adjustment:	0.92	1.00	0.92	0.92	0.98	0.95	0.92	1.00	0.92	0.92	1.00	0.92						
Lanes:	1.00	2.00	1.00	1.00	1.64	0.36	1.00	3.00	1.00	1.00	3.00	1.00						
Final Sat.:	1750	3800	1750	1750	3053	646	1750	5700	1750	1750	5700	1750						
Capacity Analysis Module:	<hr/>																	
Vol/Sat:	0.07	0.06	0.18	0.20	0.29	0.29	0.11	0.13	0.12	0.02	0.11	0.07						
Crit Moves:	****		****		****		****		****	****		****						
Green Time:	14.3	32.6	45.3	41.7	60.0	60.0	21.7	31.1	45.4	12.6	22.0	63.7						
Volume/Cap:	0.63	0.24	0.51	0.61	0.63	0.63	0.63	0.55	0.35	0.24	0.63	0.14						
Delay/Veh:	62.1	38.9	34.3	39.4	27.4	27.4	55.0	43.9	31.8	55.0	51.6	18.2						
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
AdjDel/Veh:	62.1	38.9	34.3	39.4	27.4	27.4	55.0	43.9	31.8	55.0	51.6	18.2						
LOS by Move:	E	D+	C-	D	C	C	D-	D	C	D-	D-	B-						
HCM2kAvgQ:	152	89	267	305	407	407	208	229	170	45	210	69						

Note: Queue reported is the distance per lane in feet.

HCM Unsignalized Intersection Capacity Analysis  
1: Mathew Street & Center Project Driveway

Existing Plus Project  
Timing Plan: AM Peak



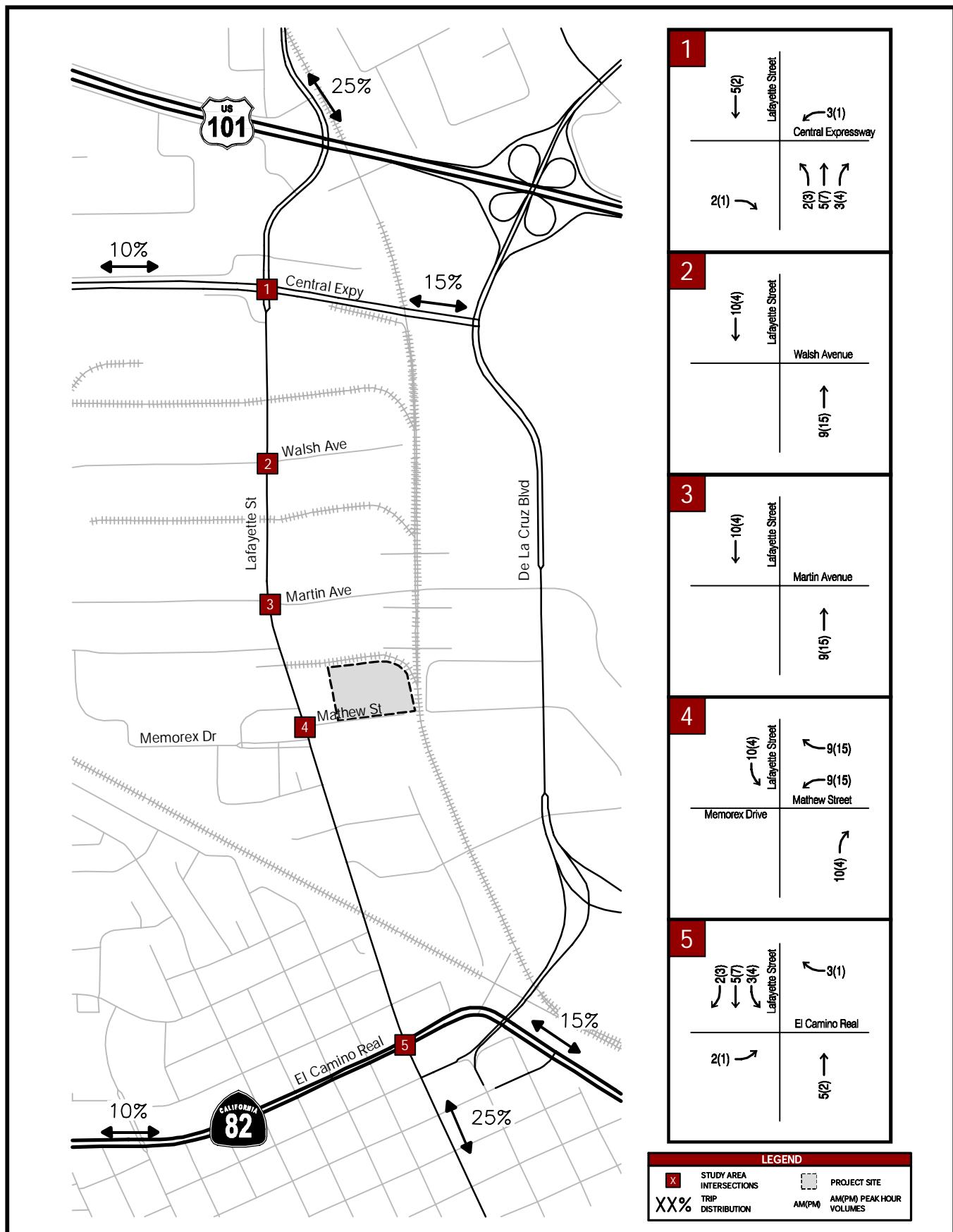
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	0	0	0	0	18
Future Volume (Veh/h)	19	0	0	0	0	18
Sign Control	Free	Free		Stop		
Grade	0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	0	0	0	0	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None	None				
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0			42	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0			42	0	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	99			100	98	
cM capacity (veh/h)	1623			957	1085	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	21	0	20			
Volume Left	21	0	0			
Volume Right	0	0	20			
cSH	1623	1700	1085			
Volume to Capacity	0.01	0.00	0.02			
Queue Length 95th (ft)	1	0	1			
Control Delay (s)	7.2	0.0	8.4			
Lane LOS	A		A			
Approach Delay (s)	7.2	0.0	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay		7.8				
Intersection Capacity Utilization		13.3%	ICU Level of Service		A	
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis  
1: Mathew Street & Center Project Driveway

Existing Plus Project  
Timing Plan: PM Peak



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	0	0	0	0	29
Future Volume (Veh/h)	8	0	0	0	0	29
Sign Control	Free	Free		Stop		
Grade	0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	0	0	0	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None	None				
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0			18	0	
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vCu, unblocked vol	0			18	0	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	99			100	97	
cm capacity (veh/h)	1623			994	1085	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	9	0	32			
Volume Left	9	0	0			
Volume Right	0	0	32			
cSH	1623	1700	1085			
Volume to Capacity	0.01	0.00	0.03			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	7.2	0.0	8.4			
Lane LOS	A		A			
Approach Delay (s)	7.2	0.0	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay		8.2				
Intersection Capacity Utilization		13.3%	ICU Level of Service		A	
Analysis Period (min)		15				

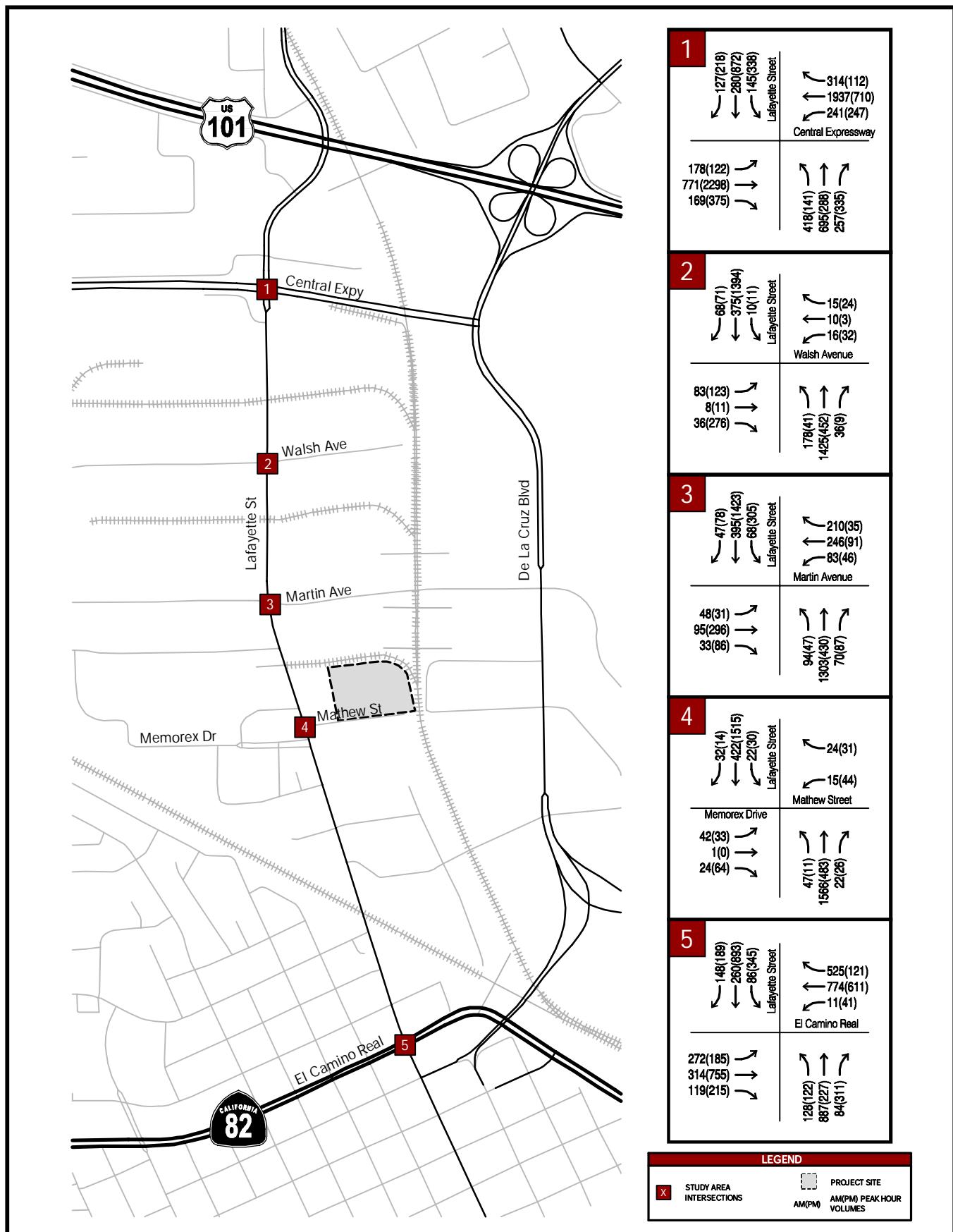


#### ATTACHMENT D

#### PROJECT GENERATED PEAK HOUR TURNING MOVEMENT VOLUMES

**Kimley»Horn**

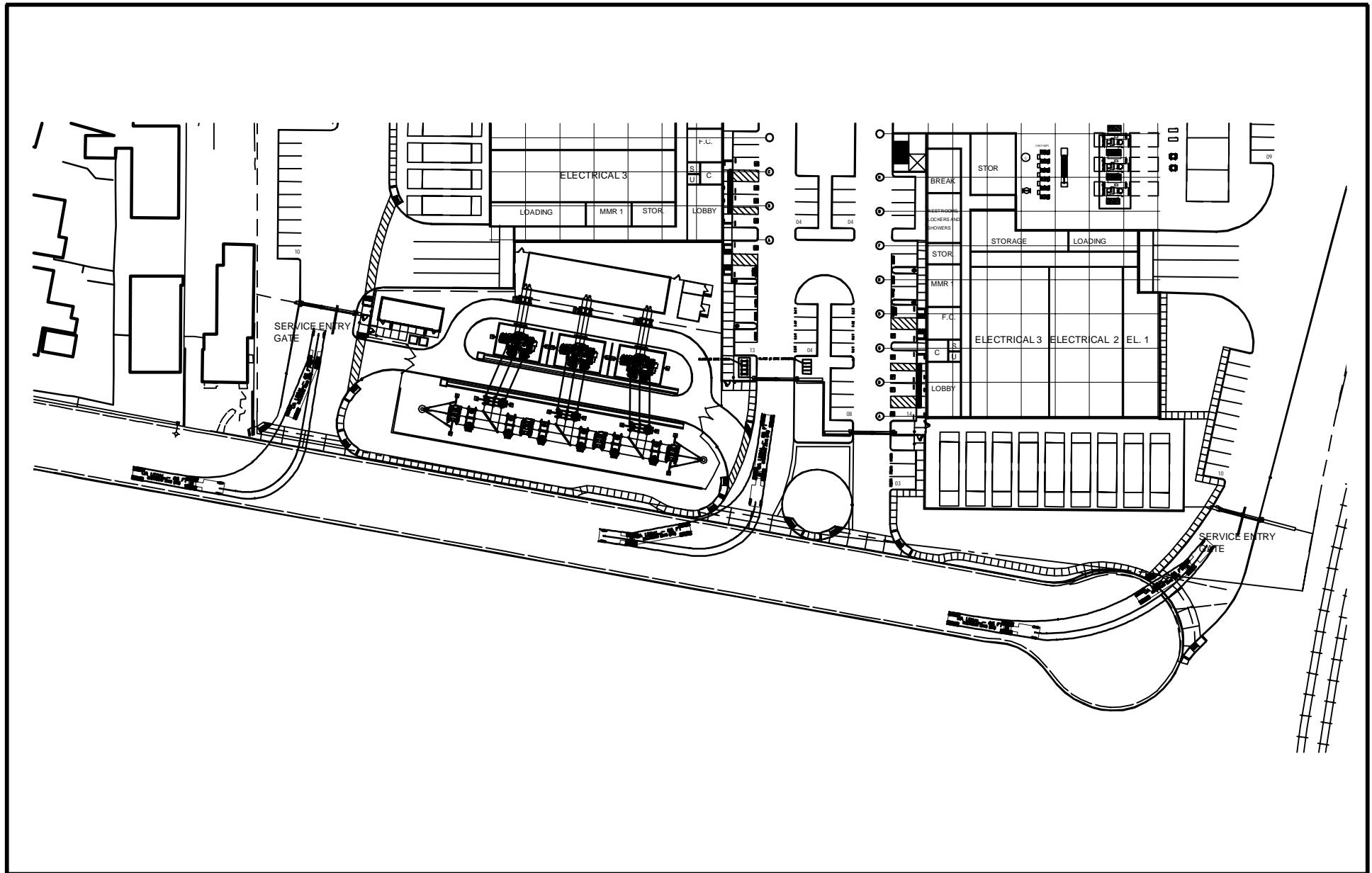




**Kimley»Horn**



**ATTACHMENT E**  
**EXISTING PLUS PROJECT CONDITION**  
**PEAK HOUR TURNING MOVEMENT VOLUMES**



**Kimley»Horn**



**ATTACHMENT F  
TRUCK TURNING MOVEMENTS AT DRIVEWAYS**